

Mikrochimica

Micro and Trace Analysis

Acta

Vol. 1991 II

ISSN 0026-3672

Springer-Verlag Wien New York

Mikrochimica Acta

Editorial Board:

J. A. C. Broekaert, Dortmund
M. Grasserbauer, Wien
F. M. Hawkridge, Richmond, VA
D. E. Leyden, Richmond, VA
A. Mizuike, Tokyo

T. A. Nieman, Urbana, IL
W. Simon, Zürich
G. Tölg, Dortmund
W. Wegscheider, Graz (Managing
Editor)

Advisory Board:

R. A. Chalmers, Aberdeen (Chairman)

F. Adams, Wilrijk
P. J. Arpino, Paris
G. den Boef, Amsterdam
N. J. Dovichi, Edmonton
K. Furuya, Tokyo
B. Griepink, Brussels
D. M. Hercules, Pittsburgh, PA
D. B. Hibbert, Sydney
F. J. Holler, Lexington, KY
J. F. K. Huber, Wien
A. Hulanicki, Warszawa
J. Janča, Brno
G. Johansson, Lund
G. Kainz, Wien
H. Kawaguchi, Nagoya
R. Kellner, Wien
D. Klockow, Dortmund
V. Krivan, Ulm
L. Kryger, Aarhus
D. Littlejohn, Glasgow
B. Magyar, Zürich

H. Malissa, Wien
H. Malissa, Jr., Linz
W. Merz, Ludwigshafen a. Rh.
M. Meyerhoff, Ann Arbor, MI
J. W. Mitchell, Murray Hill, NJ
G. H. Morrison, Ithaca, NY
K. Niemax, Dortmund
R. Niessner, München
L. Niinistö, Espoo
S. V. Olesik, Columbus, OH
H. M. Ortner, Darmstadt
M. Otto, Freiberg
E. Pungor, Budapest
A. Sanz-Medel, Oviedo
P. Schramel, Neuherberg
B. Schreiber, Basel
M. Tanaka, Nagoya
C. Vandecasteele, Heverlee
D. E. Wells, Aberdeen
E. S. Yeung, Ames, IA
T. Yotsuyanagi, Sendai

The exclusive copyright for all languages and countries, including the right for photo-mechanical and any other reproductions including microform is transferred to the publisher.

Contents

1991 II, No. 1-6

Euroanalysis VII

Triennial European Conference on Analytical Chemistry, Technical University,
Vienna, Austria, August 26-31, 1990

Reviews on Analytical Chemistry

M. Grasserbauer, J. F. K. Huber, W. Wegscheider (eds.)

Preface.

W. Wegscheider, M. Grasserbauer, J. F. K. Huber 1

"Declarations of Vienna".

L. Niinistö 2

A.E.I.O.U. and Reflections on Analytical Chemistry.

H. Malissa, Sr. 3

A. Applications of Analytical Chemistry

Vapor-Particle Partitioning of Hydrocarbons in Western Mediterranean Urban and Marine Atmospheres.

J. Albaigés, J. M. Bayona, P. Fernandez, J. Grimalt, A. Rosell, R. Simó .. 13

Analysis of Trace Elements and Their Physico-Chemical Forms in Natural Waters.

B. Salbu 29

The Development of an Automated HPLC System for the Determination of Trace-Metals in Concentrated Brines and Its Application to Process Monitoring.

L. Ebdon, H. W. Handley, P. Jones, N. W. Barnett 39

Trace Element Speciation in Soils, Soil Extracts and Solutions.

A. M. Ure 49

Yes, I'm Still Eating (Applications of Food Analysis).

R. Battaglia 59

Analytical Aspects of Veterinary Drug Residues.

N. Haagsma 63

Analysis of Irradiated Food. <i>W. Meier</i>	71
A Site-Specific and Multi-Element Isotopic Approach to Origin Inference of Sugars in Foods and Beverages. <i>M. L. Martin, G. J. Martin, C. Guillou</i>	81
Chemometrical Applications in an Industrial Food Research Laboratory. <i>S. de Jong</i>	93
Trends in Product Analysis for Research in the Pharmaceutical Industry. <i>S.-O. Jansson, J. Vessman</i>	103
Enantioselective Chromatography: Selection of Chiral Recognition Models. <i>W. Lindner</i>	113
New Trends in Methodological Developments in Clinical Chemistry. <i>J. Breuer</i>	129
HPLC in Clinical Chemistry: Selected Topics and Clinical Applications. <i>H. Greiling, R. Kock</i>	135
Quantitative Mass Spectrometry in Clinical Chemistry. <i>L. Siekmann, R. Kruse, G. Röhle</i>	145
Chemiluminometric Techniques in Clinical Chemistry. <i>M. M. Müller, A. Griesmacher, M. Grabenwöger</i>	157
Challenges in the Relation Between Analysis and Biotechnology. <i>B. te Nijenhuis</i>	167
The Characterization of High-Tech Materials: Perspectives, Challenges, Trends. <i>H. M. Ortner, P. Wilhartitz</i>	177
The Analysis of Synthetic Organic Materials—A Review. <i>G. Glöckner</i>	215
Polymer Analysis: Molecular Structure and Properties of Industrial Polymers. <i>R. Kuhn, H. Krömer</i>	225
Surface Spectroscopic Characterization of Advanced Polymer Materials. <i>L. Sabbatini, C. Malitesta, G. Morea, L. Torsi, P. G. Zambonin</i>	237
Scientific Methods Applied to the Study of Art Objects. <i>C. Lahanier</i>	245
Glass of the Past: The Degradation and Deterioration of Medieval Glass Artifacts. <i>M. Schreiner</i>	255
 B. Methods of Analytical Chemistry	
Inductively Coupled Plasma-Atomic Emission Spectrometry: Analytical As- sessment of the Technique at the Beginning of the 90's. <i>A. Sanz-Medel</i>	265

Laser-Induced Fluorescence in a Furnace: A Viable Approach to Absolute Analysis? <i>N. Omenetto</i>	277
Fundamental and Applied Investigations in Plasma-Source Mass Spectrometry for Elemental Analysis. <i>B. S. Ross, D. M. Chambers, G. M. Hieftje</i>	287
Mechanism of the Thermal Decomposition of Nitrates from Graphite Furnace Mass Spectrometry Studies. <i>B. V. L'vov</i>	299
Analysis of Thin Solid Films and Surfaces by Infrared Spectroscopy. <i>P. Grosse</i>	309
MS/MS in Structural Analysis of an Oviposition-Deterring Pheromone. <i>D. R. Müller, B. Domon, W. J. Richter</i>	325
Mobile and Stationary Phases for SFC: Effects of Using Modifiers. <i>H.-G. Janssen, P. J. Schoenmakers, C. A. Cramers</i>	337
New Possibilities in Analytical Chemistry Connected with Voltammetric Applications of Microelectrodes. <i>Z. Stojek</i>	353
Membrane-Oxide Semiconductor Field-Effect Transistor (MOSFET) Sensors. <i>Y. Vlasov</i>	363
Activation Analysis: Present Status in Relation to Other Analytical Techniques. <i>C. Vandecasteele</i>	379
Advancing Thermal Analysis in Response to the Increasing Demands. <i>P. K. Gallagher</i>	391
The Position-Sensitive Atom Probe: Reconstruction of the Atomic Chemistry of Solids in 3-Dimensions (Summary). <i>A. Cerezo, G. D. W. Smith</i>	401
Local and Surface Analysis Within an Analytical Electron Microscope. <i>P. Trebbia, D. Ugarte</i>	405
Image Processing in Secondary Ion Mass Spectrometry. <i>W. K. Vanhoolst, P. J. Van Espen</i>	415
Scanning Tunneling Microscopy on Clean and Adsorbate Covered Metal Surfaces. <i>R. J. Behm</i>	427
Synchrotron Radiation for Structure Analysis—EXAFS and XANES. <i>T. Murata</i>	435
 C. Special Sessions	
C1. Sample Preparation	
Mechanized Techniques for Sample Decomposition and Element Preconcentration. <i>G. Knapp</i>	445

C2. COBAC**Sampling: The Foundation-Block of Analysis.**

P. M. Gy 457

Multivariate Exploratory Data Analysis in Chemical Industry.

C. Weihs, H. Schmidli 467

SpecInfo—A Multidimensional Spectroscopic Interpretation System.

W. Bremser, M. Grzonka 483

Expert Systems for Method Development and Validation in HPLC.

M. Mulholland, N. Walker, J. A. van Leeuwen, L. Buydens, F. Maris, H. Hindriks, P. J. Schoenmakers 493

Neural Network Models for Infrared Spectrum Interpretation.

M. E. Munk, M. S. Madison, E. W. Robb 505

Chemical Imaging in Biology and Medicine Using Ion Microscopy.

D. S. Mantus, G. H. Morrison 515

C3. Quality Assurance**A Journey Through Quality Control.**

B. E. Broderick, W. P. Cofino, R. Cornelis, K. Heydorn, W. Horwitz, D. T. E. Hunt, R. C. Hutton, H. M. Kingston, H. Muntau, R. Baudo, D. Rossi, J. G. van Raaphorst, T. T. Lub, P. Schramel, F. T. Smyth, D. E. Wells, A. G. Kelly 523

C4. Teaching**Education and Training in Analytical Chemistry.**

I. Introduction: Activities of the Working Party on Analytical Chemistry (WPAC) of the Federation of European Chemical Societies (FECS) in the Field of Education in Analytical Chemistry.

L. Niinistö, R. Kellner 543

II. Undergraduate Education in Analytical Chemistry at University Level in the US—Industrial Needs 2000.

J. G. Grasselli 545

III. Specialized Education in Analytical Chemistry at University Level in Europe 1992 and Beyond—A Standpoint from Industry.

B. te Nijenhuis 550

IV. Report of the WPAC-Study Group: Education in Analytical Chemistry at University Level 1989/90—Update and Reflections.

R. Kellner 555

V. Conclusions.

R. Kellner 565

Impressum 565

Abstracted/Indexed in: Current Contents, SCI, ASCA, Analytical Abstracts, Biosis, Chemical Abstracts

Printed on acid-free paper

